In the claims:

All pending claims are set forth here. Amend claims 3, 6 and 9-12 and 48 to read as follows. Claims 1-2, 5, 7-8 and 13-47 are canceled.

1-2 (canceled).

3 (currently amended). The composite structure of claim [[1]] 48, wherein at least one of said first layer and said second layer further comprises a processing aid.

4 (previously presented). The composite structure of claim 3, wherein said processing aid comprises silicon hexaboride.

5 (canceled).

6 (currently amended). The composite structure of claim [[49]] 48, wherein said first layer comprises between 10 percent and 65 percent tantalum disilicide, ~~at least~~ between 5 percent and 30 percent molybdenum disilicide and between 20 percent and 45 percent borosilicate glass.

7-8 (canceled).

9 (currently amended). The composite structure of claim [[1]] 48, wherein said first layer material impregnates said substrate to a depth of approximately 0.1 inches.

10 (currently amended). The composite structure of claim [[1]] 48, wherein said substrate material is selected from the group consisting of a fibrous and open pore silica, silicon carbide, aluminosilicate, silicon oxycarbide and carbon substrates.

11 (currently amended). The composite structure of claim [[1]] 48, wherein at least one component of said second layer has a particle size less than about 5 μm.

12 (currently amended). The composite structure of claim [[1]] 48, wherein at least one component of said second layer has a particle size distribution having a maximum of approximately 5 μm and a mode of approximately 1 μm.

13-47 (canceled).

48 (currently amended). A composite structure, comprising:

a porous substrate, having a lower surface and an upper surface and comprising a selected substrate material and having a substrate coefficient of thermal expansion;

a first layer integrated with an exposed surface of the substrate, wherein the first layer material comprises between 5 percent and 70 percent tantalum disilicide, between [[1]] 5 percent and 30 percent molybdenum disilicide, and between 10 percent and 95 percent borosilicate glass, with the first layer being positioned adjacent to and between the substrate upper surface and a second layer having a material composition different from the first layer;

.

~~wherein the composite structure forms a functionally gradient system that gradually transitions from a fist first composition in the substrate to a second composition in the first layer to a third composition in the second layer;~~

~~wherein the first layer material comprises a first non-zero percentage of tantalum disilicide, a second non-zero percentage of molybdenum disilicide and a third non-zero percentage of borosilicate glass, and the second layer material comprises a fourth non-zero percentage of tantalum disilicide, a fifth non-zero percentage of molybdenum disilicide, and a sixth non-zero percentage of borosilicate glass;~~

~~wherein the first, second and third percentages are chosen so that a coefficient of thermal expansion of the first layer is substantially the same as a coefficient of thermal expansion of the substrate; and~~

~~wherein the fourth, fifth and sixth percentages are chosen to provide a protective layer when exposed to temperatures up to at least 3000 °F.~~

wherein the second layer material comprises between 20 percent and 60 percent molybdenum disilicide, between 40 percent and 80 percent borosilicate glass and a processing aid, such as silicon hexaboride, wherein composition of the second layer is chosen so that a coefficient of thermal expansion of the second layer is approximately the same as a coefficient of thermal expansion of the first layer, and the combined first and second layers provide a protective layer when exposed to temperatures around 3000 ^{o}F